

Caring for Aging Skin: Leader Guide



Introduction

In this lesson we will look at what causes changes in the skin as we age as well as different techniques to preserve skin quality. We will also look at treatments to prevent or address skin damage and pre-cancerous cells. Most of us have probably observed signs of aging in our skin—wrinkles, skin spots, red patches, softness in areas that used to be firm—these are natural signs of aging. However, we can slow down or minimize some of these changes and identify potentially dangerous skin problems with simple, consistent practices.

Lesson Objectives

After this lesson, participants will be able to:

- Describe changes in the skin that occur during aging and why this happens.
- Explain different options for protecting and enhancing skin.
- Identify potentially dangerous changes to the skin that could indicate pre-cancerous cells or melanoma.
- Understand and interpret claims made in skin care product advertising.

Materials Needed for the Lesson

- Participant handouts of: “Detect Skin Cancer: The Body Mole Map”, and evaluations.
- Samples of different skin care products containing oils, lanolin, petrolatum, etc. for discussion and testing of moisturizers, hydration and emollients.
- Sample of foods that contain vitamins important for skin health.
- Magnifying glass for reading labels.

Teaching Instructions

1. Read the Introduction and Lesson Objectives above
2. Read description of skin and effects of aging below and then discuss
3. Review basic skin care
4. Discuss lifestyle choices that effect skin care
5. Discuss (and possibly taste) vitamins and foods that can enhance skin health
6. Read skin problems and skin cancers
7. Moisturizer testing activity
8. Read conclusion
9. Do evaluation

Description of Skin & Effects of Aging

The outermost layer of skin is called the epidermis. It is flexible and resistant, and provides a waterproof/water resistant covering. It protects us from water loss, and regulates gas exchange. It also helps to protect the body from trauma and eliminates body waste in the form of sweat. The skin is a barrier to pathogens and other harmful materials. Because it is naturally acidic it combats bacteria and germs that we encounter every day.

The sensory receptors in skin detect pressure, temperature, pain and other sensations. Some parts of our bodies have thicker layers of epidermis than others, for example the palms of our hands and the soles of our feet. The thinnest epidermal layer is on our eyelids.

Melanocytes, which produce skin color pigment are scattered throughout the basal layer of the epidermis. They help to filter out ultraviolet radiation. Exposure of the skin to sunlight for as little as 15 minutes a day allows skin cells to produce Vitamin D which works with calcium to strengthen bones.

Our skin becomes more delicate as we age, thinning out, losing fat, and losing elasticity. It no longer looks as smooth and plump as it used to. Veins can be seen more easily. Scratches, cuts and bruises take longer to heal. In addition, we lose sweat and oil glands making skin drier. The number of melanocytes also decreases so skin is less able to protect itself from the sun. Years of exposure to sun and dry air lead to wrinkles, dryness, age spots and sometimes cancer. In our 30s we need to use daily moisturizer and sunscreen to protect our skin. In our 40s and beyond we continue to need moisturizer and sunscreen and we may want to consider using lotions or creams with alpha-hydroxy acids or retinols to reduce wrinkles, reveal smoother underlying skin, and enhance skin tone.

Discussion

What are some of the issues you have had with your own skin?

What kind of treatments have you tried to improve skin quality or heal damaged areas?

Vocabulary related to skin may be new to us—let's review some of the common terms (see the attached Skin Care Vocabulary List).

Basic Skin Care

A basic skin care regime involves using a cleanser, a moisturizer and sunscreen. If you use a skin medication apply it after the cleanser. If you use makeup, apply it after the sunscreen. Using too many products on your skin can irritate the skin.

Cleansing: Skin cleansers remove make up, dead skin cells, oil, dirt, and pollutants from the skin, and help unclog pores. Use a gentle, non-abrasive cleanser that doesn't contain alcohol. Use your fingers, not a washcloth to apply the cleanser and use lukewarm water to moisten and rinse. Limit washing to once in the morning and once at night, and after sweating. Pat your skin dry with a soft towel after cleaning.

Moisturizing: The *stratum corneum* is the outermost layer of skin. When it becomes dehydrated it becomes cracked and scaly. Moisturizers hold water in the outer most layer of skin. This helps protect and treat dry and sensitive skin, and improve skin tone and texture. Most moisturizers contain a combination of *humectants* and *emollients* in the form of

lightweight oils like cetyl alcohol or cyclomethicone. A heavier moisturizer might include *antioxidants* like grape seed oil, or dimethicone, or petroleum-based products. Sensitive skin moisturizers may include soothing ingredients like chamomile or aloe.

Natural skin moisturizers need to be conserved. Urea is one of three natural moisturizing factors (NMF) found in the outer layer of our skin. The other two are lactic acid and amino acids. Mature skin will require an oil-based moisturizer that contains petrolatum and has antioxidants and alpha-hydroxy acids to combat wrinkles.

Apply moisturizers immediately after bathing when skin is patted dry. Use heavy oil-based creams on legs, hands and feet because they tend to be dryer. If you have dry skin, then avoid skin care products with alcohol. Look for products that have *lactic acid, urea, or hyaluronic acid* that can help the skin hold water.

Dimethicone and glycerin help draw water to the skin and keep it there. Lanolin, mineral oil, and petrolatum (also known as petroleum jelly) effectively trap water in the skin. Some anti-aging products containing *retinoids* or *alpha-hydroxy acids* that can irritate dry, itchy skin. Switching to a more moisturizing formula can bring relief.

Sun Protection: Experts recommend using a broad spectrum (protects against ultraviolet A & B radiation) sunscreen with SPF of at least 30. UVA rays cause wrinkling and cancer. UVB rays cause burning. Choose a water resistant sunscreen and apply it 15-30 minutes before exposure to the sun. Reapply every two hours and after swimming, sweating or rubbing skin with a towel. Most people don't apply enough sunscreen. You should apply 2-3 tablespoons of lotion to all skin surfaces exposed to the sun—face, ears, hands, arms, lips—and top of head if balding. Sunscreen loses effectiveness over time so if yours is over three years old, throw it away and start fresh.

Other forms of sun protection include protective clothing—including a wide brim hat, sunglasses, and loose-fitting lightweight shirts, pants, or skirts. Also, avoid the sun during peak hours—generally 10 am to 4 pm regardless of the season. Remember that sand, water and snow reflect sunlight intensifying the need for sunscreen, and that UVA rays penetrate both glass and clouds.

Anti-Aging Products and Procedures: Skin care products and procedures that have anti-aging properties are very popular today. For example, moisturizing creams help plump up wrinkles, and chemical peels and laser skin resurfacing may improve the appearance of thin wrinkles and irregular pigmentation. Products that have antioxidants and anti-inflammatory properties may be used to decrease eye circles and puffiness, reduce blotchiness and shrink pore size. Other products may maintain muscle tone in the face firming and lifting the skin. Vitamin C ester helps to stimulate the production of collagen and elastin giving skin more strength and flexibility.

Lifestyle Choices that Improve Skin Health

1. Things to decrease: stress, and caffeine.
2. Things to increase: sleep, exercise, and drink more water.
3. Things to avoid: smoking, hot showers or baths, harsh skin cleansers.

Vitamins, Food and Skin Health

Vitamins A, C, D and E are found in a wide variety of foods and skin care products, and are particularly helpful for nourishing our skin.

Vitamin A (retinol) helps regulate skin cell function and boosts the immune system. It is often used as a topical anti-aging treatment. Foods containing Vitamin A include carrots, sweet potato, green leafy vegetables, melons, and apricots.

Vitamin C (ascorbic acid) helps fight skin damage from UV rays and acts as an antioxidant preventing skin dryness, and development of fine lines and wrinkles. Foods high in vitamin C include citrus fruits, bell peppers, broccoli, green leafy vegetables, strawberries, papaya and cauliflower.

Vitamin D (calcitriol, calcidiol, and calciferol) is synthesized in the skin when exposed to the sun. It is responsible for absorbing calcium and phosphate in the digestive system and helps regulate blood flow to the skin, nourishing the skin and influencing color and softness. Good sources of Vitamin D include mushrooms, tuna fish, salmon, eggs, and cheese.

Vitamin E (tocopherol) helps protect the skin from wrinkling and oxidative damage and lubricates cell membranes. Good sources of Vitamin E include sunflower, safflower and wheat germ oil, almonds, spinach, other leafy greens (mustard, Swiss chard, turnip, collard), as well as papaya, nuts and bell peppers.

Look at the skin care products in the room and see if you can identify any of these vitamins in the ingredient list. You may want to have a sampler tray of foods containing these vitamins.

Special Skin problems & Skin Cancer

When skin is dry avoid taking hot showers or baths and use mild cleansers. Running a humidifier in the house can keep air moist. Treat **cracked skin** with antibiotic ointment to prevent infection. **Dry spots** that may be prone to ulcers need a thick moisturizing lotion.

People with limited mobility may develop a **bedsore**, also known as a **pressure ulcer**. When parts of the body are under pressure for long periods of time circulation can be limited and this causes damage to the skin and underlying tissue. Stage I bedsores are red, hot patches that will heal quickly if the pressure is relieved. Stage IV bedsores are deep wounds that may penetrate to the bone and can cause life threatening infections.

Some people suffer from **prickly heat or miliaria**, a skin rash that looks like small red blisters. This usually occurs when sweat ducts on the skins surface are clogged. If skin is kept clean, cool and dry and sweating is limited this can reduce the irritation and itchiness. Air conditioning and powders that absorb moisture are helpful.

A **solar keratosis** is a dry spot that may be considered precancerous. It is usually pink or red, but may also be gray or brown in color. It may be irregular in shape or scaly, and have a hard, rough, or gritty texture. It can be removed by freezing with liquid nitrogen or scraping and then burning with *electrocautery*. Creams such as *fluorouracil* or *imiquimod* may be applied as chemotherapy to destroy precancerous growth.

Over one million new cases of skin cancer are diagnosed every year. There are **three types of skin cancers**, the first two, basal cell carcinoma and squamous cell carcinoma grow slowly

and rarely spread to other parts of the body. Melanoma, the third type, can spread to other organs and cause death. You should check your skin once a month for changes that might indicate a skin cancer using the A, B, C, D, E checklist. Check moles and birthmarks for, *asymmetry*, *irregular borders*, *color* changes, increased *diameter*, and *evolving*-changes in size, shape, sensitivity, itchiness, bleeding, and variations in shades of color. If you find a lesion, mole or skin patch with any of the above qualities you should contact your doctor right away to schedule an evaluation.

Review Handout: "Detect Skin Cancer: The Body Mole Map."

Moisturizer Testing Activity

Participants apply three different types of moisturizers to their hands to explore the differences in light to heavy lotions as well as the terms associated with different products. Try a variety of oils, lanolin, or petrolatum.

Conclusion

Skin care doesn't have to be complicated or expensive but it does take daily time and attention. There are a lot of products and advertising available that may or may not help protect and enhance our skin. Knowing what to look for on labels as well as what we can reasonably fix or improve in our skin helps us be more informed consumers. We need to be our own advocates for skin care and monitoring. Having a routine for caring for our skin and monitoring for potential skin cancers is an essential part of our own preventive medicine.

Evaluation

Please take time to have participants evaluate this lesson using the prepared evaluation form. Give participants five minutes or so to complete the evaluation. Please collect and return evaluations to the local Extension Office.

Skin Care Vocabulary

Actinic or solar keratosis is a small rough spot occurring on skin that is chronically exposed to the sun. It may be reddish and scaly and possibly sore to the touch.

Age spots/Dark spots are harmless flat brown spots caused by years of exposure to sun. They are often bigger than freckles and show up on hands, faces, arms, back and feet.

Alpha hydroxy acids (and beta) are found in many creams designed to remove dead layers of skin to expose new, smoother skin underneath.

Anti-inflammatory describes the ability of a substance to reduce inflammation

Antioxidants are molecules that inhibit oxidation of other molecules. Oxidation is a chemical reaction that can produce free radicals. Free radicals can start chain reactions that damage cells.

Anti-pruritics reduce itching or irritation. They may be a cream, a spray or an oral prescription drug. They include antihistamines, corticosteroids, local anesthetics, and soothing agents like camphor.

Botox is an injectable skin treatment that temporarily paralyzes the muscles around where it is injected, for example in the forehead, to reduce the appearance of wrinkles.

Chemical peels damage the skin in a controlled manner. The damage is repaired by natural healing to improve the skin's appearance. They are categorized as superficial, medium or deep and may be used to treat sun-damaged skin, uneven pigmentation, acne scarring and actinic keratosis.

Cleansers remove dirt, sweat, excess oils and sometime bacteria from the skin.

Collagen is a protein that forms the supporting structure of the skin. Collagen levels decrease with aging and skin damage.

Correcting serums are designed to diminish age spots and discoloration, and even out skin tone.

Décolleté- the part of a woman's chest from the neck to the bosom which is often exposed with low-cut necklines. The area may include the neck, shoulders, back and chest.

Dimethicone- (also known as polydimethylsiloxane or PDMS) a silicone-based polymer that helps draw water to the skin.

Emollient is a material that soothes and softens the skin-usually lipids or silicones. They are usually grouped by their ability to spread on the skin.

Humectant is a substance that helps retain moisture in skin. Humectants include glycerin, urea, and pyrrolidone carboxylic acid (PCA).

Hyaluronic acid is a lubricant that is part of connective tissue which is injected in wrinkled areas around the eyes, nose, mouth and forehead to "plump up" skin. Brand names include Restalyne and Juvaderm.

Keratolytic therapy is used to soften or thin the horny layer of the skin. Different kerolytic agents are used to treat warts, acne, and dandruff, to name a few conditions.

Lanolin, also known as wool wax, or wool grease is a yellow waxy substance secreted by wool bearing animals (eg. sheep). Lanolin products are often used in skin care products. Approximately 40% of the acids derived from lanolin are [alpha-hydroxy acids](#).

Moisturizers include creams, lotions and ointments that can sooth dry, itchy or cracking skin. They should be used daily.

Noncomedogenic means that it won't clog pores.

PEG (polyethylene glycol) an emulsifier (helps water-based and oil-based ingredients mix properly) and thickening agent, not to be used on broken, damaged or irritated skin.

Retinol, also known as Vitamin A, is a fat soluble mineral that produces pigment for our eyes (specifically the retina) and skin.

Scrubs and Exfoliators contain tiny particles or beads that help remove dead skin cells. This makes the skin smoother and unplugs pores.

Skin cancer- There are three types of skin cancer; basal cell carcinoma, squamous cell carcinoma and melanoma.

Skin tags are flesh-colored growths that often occur on eyelids, neck and body folds. They are harmless but can get irritated.

SPF (sun protection factor) measures the ability of a product to reduce the amount of ultraviolet (UV) radiation penetrating the skin. For example, SPF 10 reduces radiation by 90% and SPF 30 reduces radiation by 97%. Effective sunscreen ingredients include: avo-, oxy- or suliso-benzone, cinoxate, ecamsule, menthyl anthranilate, octyl-methoxycinnamate, octyl salicylate, and zinc.

Titanium or zinc dioxides are mineral based sunscreens.

Tone is the underlying hue to skin that shows through the surface color of skin. Although the surface color of skin may change the skin's undertone remains consistent.

Toners are used to balance the Ph level of your skin, and unlug and tighten pores. Optimal Ph for skin is 5.5—slightly acidic to fight off bacteria.

Ulcers may result when the top layer or even deeper layers of extremely dry skin rub off completely. This can lead to infection depending on health and age of the individual.

Ultraviolet -A- radiation from the sun that causes tanning, wrinkling and age spots. This can penetrate deep into your skin and suppress your immune system.

Ultraviolet -B radiation from the sun that causes sun burn.

Witch hazel is a natural astringent that reduces swelling and inflammation. It is produced from the leaf and bark of the witch hazel tree.

Sources and Resources

National Institute on Aging: www.nia.nih.gov/health

American Academy of Dermatology; www.aad.org

National Cancer Institute: www.cancer.gov

Mayo Clinic: <http://www.mayoclinic.com/health/moisturizers/SN00042>

Total Body Skin Exam: <http://www.aad.org/education/medical-student-core-curriculum/dermatology-procedural-videos/the-total-body-skin-exam>

Truth in Aging: <http://www.truthinaging.com/ingredients/peg-150-distearate>

Collagen and Skin Elasticity <http://www.livestrong.com/article/258746-skin-elasticity-collagen-natural-remedies/>

Five Ingredients to Look for in Your Skin Care Products <http://www.doctoroz.com/videos/5-ingredients-look-your-skincare-products>

Sunscreen buying guide: www.consumerreports.org/cro/sunscreens/buying-guide.htm#

Four fantastic vitamins for a gleaming skin, Ashkay Sharma, November 19, 2012: <http://www.vitaminstore.com/four-fantastic-vitamins-for-a-gleaming-skin/>

Structure and Function of the Skin, and Effects of Aging on the Skin, Robert MacNeal 2006. http://www.merckmanuals.com/home/skin_disorders/biology_of_the_skin/structure_and_function_of_the_skin.html and [/effects_of_aging_on_the_skin.html](http://www.merckmanuals.com/home/skin_disorders/biology_of_the_skin/effects_of_aging_on_the_skin.html)

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